

APPL. No. 10/729,670

Amdt. Dated: November 1, 2004

Reply to Office Action of August 23, 2004

Page 2

Amendments to the Specification:

Please replace paragraph [0016] with the following amended paragraph:

[0016] The invention will also encounter conditions that will require it to determine the liquid levels on more than one tank at a time. This task is accomplished by attaching more sensors to the appropriate ports on the smart transceiver board of the invention. The invention has been designed to monitor the liquid levels of one or more tanks at a time. The invention determines the liquid level of tanks using the current float technologies in the tanks by means of a specially developed sensor cap as shown in Fig. 2. This cap fits externally on the stem of the float device in the tank. This cap contains a follower magnet assembly 34 which travels up and down and magnetically 28 follows the magnet 25 in the tank's own float. This vertical movement is a constantly occurring cyclical process that happens as the tank is filled and emptied. The follower magnet assembly 34 rides on a spiral shaft 36 that is positioned parallel to the float stem 26 on the tank. An optional linear programmable Hall effect sensor 24 that induces a voltage signal in ratiometric proportion to the proximate magnetic field created by the magnet 25 traveling in a casing 27. As the magnetic flux density at the sensor 24 changes proportional to its proximity of the magnet 25, or as the strength of the magnetic field changes, driven by the upward and downward movement of the magnet 25 on the float stem 26 that follows tank level changes, even as small as 1 gauss, the sensor 24 registers a change in voltage. The sensor 24 is optionally programmed on a smart transceiver board 23 to a specified sensitivity that calibrates to a certain number of millivolts per gauss. The set quiescence voltage is approximately 0.5 volts. As the magnet 25 moves, voltage is added to the quiescence voltage from the sensitivity calculation performed during sensor calibration. By reading the voltage, and looking up its value in a programmed table, the liquid level inside the tank is determined and compared with the reading from the low torque potentiometer 32 connected to shaft 36. The shaft 36 has a spiraling track fitted with a jeweled bearing assembly (not shown) on the lower end. The follower magnet assembly 34 has a corresponding and matching track that causes the shaft 36 to spin in the bearing

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Page 3

as the follower magnet assembly 34 rises and falls. The position of the follower magnet assembly 34 on the spinning shaft is determined and reported by a low torque potentiometer 32 (which is connected to the upper end of the shaft) to the smart transceiver board 23. The controlling software can then determine the amount of liquid in the tank by the information it receives from the potentiometer 32 connected to the spinning shaft 36. The spiraled shaft 36, the follower magnet assembly 34 and sensor housing 22 have been specifically designed for this application. The rotational requirements for the most accurate readability of the device were calculated and matched with the low torque potentiometer 32 to achieve optimum functionality. The smart transceiver 23, hall effect sensor 24, and potentiometer 32 are enclosed in a water resistant housing 22.